

REMARKS/ARGUMENTS

In the office action, Claims 1, 15, 20, 21, 24, 27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al (6,914,658) in view of Shiro (JP 5 07-318956). Claims 2, 3, 6, 7, 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro et al, and further in view of Jung et al (US 2005/0030468). Claims 4, 5, 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro and Jung et al as discussed above, and further in view of Nakahara et al (US 6,989,879) and Takako et al (US 2003/0058264).

10 Claims 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro, and further in view of Cheng et al (US 7,061,560). Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro, and further in view of Chung et al (US 2004/0012750).

15 Claims 1, 2, 5, 6, 15, 16 are amended, Claims 35 and 36 are added and Claims 20 and 21 are canceled to overcome the rejections presented by the Examiner. Support for the amendment can be found in the written description as filed in specification, Fig. 4, Fig.5, Fig.6, Fig. 7, Fig.9, and Fig. 11. No new matter has been introduced by this amendment.

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1. Rejection of Claims 1, 15, 20, 21, 24, 27 and 32:

Claims 1, 15, 20, 21, 24, 27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro for reasons of records, as cited in pages 2-3 in the above-identified Office action.

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Response:

Claims 1 and 15 are amended to overcome the rejections presented by the Examiner.

Support for the amendment can be found in the written description as filed in specification, Fig.5, Fig.6, Fig.9, and Fig. 11. No new matter has been introduced by this amendment.

5 The traditional sealant material used in industries may react with the liquid crystal molecules as influencing by the factors of temperature and time or other process factors. It seriously affects the orientations and twists of the liquid crystal molecules in defects and causes contaminations. When a common voltage is applied to the liquid crystal layer, the liquid crystal molecules near the sealant twist in a different direction from other liquid
10 crystal molecules, and it results in that the display image near the sealant differs from the other positions of the LCOS display panel, causing the mura problem, and in decreasing the display performance of the LCOS display panel. In order to solve those problems, the present application provides a liquid crystal display panel including the spacer wall and the spacer block which separate the liquid crystal molecules from the sealant material. It
15 is an advantage of the present application that the spacer wall is positioned between the sealant and the active region so as to prevent the sealant from contacting and contaminating the liquid crystal molecules in the liquid crystal layer, and furthermore to improve the display performance of the LCOS display panel. In addition, the spacer wall can support the first substrate so that silica balls are no longer needed to be mixed in the
20 sealant.

Examiner rejects Claim 1 as being unpatentable over Seshan in view of Shiro. However, Applicant submits that Shiro does not disclose the spacer block of the present Application.

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In Abstract of Shiro's disclosure, "on-sided end faces of both oriented films 4, 9 forming the surface flush with the wall surface with the wall surface ...of the sealing material dam part 7, therefore, these on-side end faces *play the role of guides*, by which

the sealing material tending to infiltrate both ends of the sealing material dam part 7 is eventually made to *flow laterally at (A) along these on-side end faces.*"

The position of the spacer block of Claim 1 is different from that of the sealing material dam part 7 of Shiro. According to Shiro's Abstract and Figs. 1-3, the sealing material dam part 7 is set inside the injection port 5 and the sealing material flows inside space formed by the walls of injection port 5, dam part 7 and oriented film 4, 9. However, the spacer block of Claim 1 is in the injected opening. The spacer blocks in the present Application is positioned in the openings for preventing the sealant from diffusing through the openings into the active region, and preventing the contamination of the liquid crystal molecules near the openings. The sealant of Claim 1 would not substantially contact with the inner side of the spacer wall, but the sealant of Shiro would flow inside. Therefore, in Claim 1, the contact area of the sealant with the liquid crystal is much smaller compared to that of Shiro. Claim 1 of this Application has been amended to emphasize this characteristic.

Since Seshan and Shiro do not disclose the spacer wall or any spacer blocks defined in Claim 1, Claim 1 is patentable in comparison with the combination of the cited cases. Reconsideration of Claim 1 is respectfully requested.

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In Seshan's and Shiro's disclosures, all the spacer walls have openings in practice. However, the amended claim 15 discloses that *the active region is enclosed by the spacer wall*, as shown in Fig. 7. In addition, Seshan and Shiro only disclose the LCD apparatus. The cited references do not teach a liquid crystal on silicon (LCOS), which is disclosed in the amended claim 15. Since Seshan and Shiro do not disclose that *the spacer wall* encloses the active region, and not disclose an LCOS, claim 15 should be patentable in comparison with these cited references. Reconsideration of claim 15 is respectfully requested.

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As claims 20, 21, 24, 27 and 32 are dependent upon claim 15, they should be allowed if claim 15 is allowed. Reconsideration of claims 20, 21, 24, 27 and 32 is respectfully requested.

5 **2. Rejection of Claims 2, 3, 6, 7, 10, 16 and 17:**

Claims 2, 3, 6, 7, 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro et al, and further in view of Jung et al for reasons of records, as cited in page 4 in the above-identified Office action.

10 **Response:**

Examiner rejects Claims 2, 3, 6, 7, 10, 16 and 17 as being unpatentable over Seshan in view of Shiro, and further in view of Jung. However, Applicant submits that Jung does not disclose the thin film layer corresponding to the peripheral region. In contrast, Claim 2, 6 and 16 disclose the thin film layer corresponding to the peripheral region. Jung discloses “an *anti-reflection film* (not shown) for preventing a reaction between the sealant 90 and the liquid crystal material *is formed on the sealant 90.*” The thin film layer of Claims 2, 6 and 16 is under the spacer wall and sealant. In contrast, the anti-reflection film of Jung is “*formed on the sealant 90*”. The position of the thin film layer of Claim 2 is different from that of the anti-reflection film of Jung. Claims 2 , 6 and 16 have been amended to emphasize this characteristic.

As a result, Jung does no specifically disclose the thin film layer patterned corresponding to the peripheral region of the present Application. Seshan, Shiro and Jung do not teach all the limitations in claims 1 and 15, the amended claims 1 and 15 should be patentable comparatively. Since claims 2 and 3 are dependent upon claim 1, and claims 16 and 17 are dependent upon claim 15, they should be allowed if claim 1 and claim 15 are allowed. Reconsideration of claims 2-3, 16 and 17 is respectfully requested.

Claim 6 is amended for specifically defining the characteristic of the present application. Therefore, applicants believe claim 6 should be allowable in comparison with the combination of the cited references. As claims 7 and 10 are dependent upon claim 6, they should be allowed if claim 6 is allowed. Reconsideration of claims 6, 7 and 5 10 is respectfully requested.

3. Rejections of Claims 4, 5, 8, 9, 18 and 19:

Claims 4, 5, 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro and Jung et al as discussed above, and 10 further in view of Nakahara et al and Takako et al for reasons of records, as cited in pages 4-6 in the above-identified Office action.

Response:

The Examiner asserts that Nakahara et al disclose alignment films 13 and 23 on the 15 peripheral region, and that Takako et al disclose alignment film can align the liquid crystal molecules vertically at initial state. However, the alignment film 13 and 23 of Nakahara is over the entire pixel. The alignment film of Claim 4 is “patterned corresponding to the peripheral region”(as disclosed in Claim 2), which is different from Nakahara’s disclosure.

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In addition, Nakahara's does not disclose the first alignment layer and the second alignment layer are both vertical alignment layers, and the reference of Takako et al never disclose or suggest to set the alignment film 33 and 37 on the peripheral region. Therefore, even the combination of the references of Seshan, Shiro, Nakahara and Takako cannot 25 obtain the structure defined in the amended Claim 4, 5, 8, 9, 18 and 19 of the present Application. Reconsideration of Claims 4, 5, 8, 9, 18 and 19 is respectfully requested.

4. Rejections of Claims 25, 28 and 33:

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Claims 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro, and further in view of Cheng et al for reasons of records, as cited in pages 6-7 in the above-identified Office action.

5 **Response:**

Cheng discloses that “the extended scan line metal layers and data line metal layers overlap with each others to form an integrated black matrix 26” (col.3, ln.49-51). In other words, the black matrix 26 is formed surrounding each pixel in the active region. However, the patterned thin film is only on the peripheral region of a panel. Since Seshan, Shiro and Cheng do not teach all the limitations of the amended claims 1, 6 and 15. Therefore, applicants believe claims 1, 6 and 15 should be allowable in comparison with the combination of the cited references. As claim 25 is dependent upon claim 1, claim 28 is dependent upon claim 6, and claim 33 is dependent upon claim 15, they should be allowed if claims 1, 6 and 15 are allowed. Reconsideration of claims 25, 28 and 33 is respectfully requested.

In addition, the priority date of Cheng’ Application (US 7,061,560) is Oct. 29, 2003(TW), which is later than that of this Application, Oct. 1, 2003(TW). Therefore, Cheng is not a qualified prior art over this Application.

5. Rejections of claims 22, 23, 26, 31 and 34:

Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seshan et al in view of Shiro, and further in view of Chung et al for reasons of records, as cited in page 7 in the above-identified Office action.

Response:

Because Seshan, Shiro and Chung do not teach all the limitations in the present claims, such as “*the thin film layer that is patterned corresponding to the peripheral region*” or “*the spacer wall encloses the active region*”, the combination of the cited references does not teach all the limitations of the amended claims 1, 6 and 15. Therefore,
5 applications believe claims 1, 6 and 15 should be allowable in comparison with the combination of the cited references.

As claims 22-23 are dependent upon claim 1, claim 26 is dependent upon claim 6, and claims 31 and 34 are dependent upon claim 15, they should be allowed if claims 1, 6
10 and 15 are allowed. Reconsideration of claims 22, 23, 26, 31 and 34 is respectfully requested.

6. New claims introduction:

15 In order to emphasize that the spacer wall can prevent the sealant from contaminating the liquid crystal molecules, claims 35-36 are added. Claim 35 shows that the liquid crystal display panel comprises a third and a fourth alignment layers covering the first and the second substrates respectively. Claim 36 shows that the spacer wall further comprises a second spacer block positioned in parallel with the spacer block.
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All of the newly added claims are fully supported by the specification of the present application, and applicant believes that the new claims are not disclosed in the cited references. Seshan, Shiro, Nakahara, Takako, Cheng and Chung do not teach the spacer wall comprises photoresist materials. Therefore, claims 35-36 should be allowable in
25 comparison with the cited references. Consideration of claims 35-36 is politely requested.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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